

Parent and Teacher Perspectives on Differentiated Instruction for Inclusion of Children with Autism in India

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This study aimed to provide insights into the knowledge and awareness of applying Differentiated Instruction (DI) as an interventional tool for teaching children with Autism in mainstream schools, and thereby encouraging inclusive teaching practices. A mixed-methods approach was implemented with a purposive sample of stakeholders. These included mainstream teachers, special educators and parents. The research was conducted using questionnaires (distribution N=188) and 31 semi-structured interviews with respondents from a sample of six mainstream schools in Chennai, India. The findings suggest that stakeholders' view DI strategies as being helpful and applicable for children with Autism. However, apprehensions were expressed, as DI strategies require planning, preparation, effort from teachers and support of other staff members. Teachers suggested the need for formal training in the implementation of DI strategies as this is a new teaching technique to many. Investigation of this evidence-based approach (DI) is a novel study within an Asian context and adds to the knowledge base of mainstream school teachers, special educators, parents and other support staff.

Keywords: Differentiated Instruction; Autism; Inclusion; India.

Introduction

Inclusive Education for Children with Autism

The challenges of including children with Autism in educational contexts are sometimes perceived as greater than for children with other special educational needs. As indicated by Leblanc et al. (2009) the symptoms associated with Autism can interfere with traditional classroom-based learning experiences. Over the past 25 years there has been an attitudinal shift in the debate surrounding the inclusion of children with Autism into mainstream schools in India (Lal, 2005). The intention to include children with Autism has been apparent in legislation, with the implementation of the Right to Free and Compulsory Education (RTE) Act (Government of India, 2009), and more recently the amended the Rights of People with Disabilities (RPWD) Bill (MSJE, 2016).

Rationale for the Research

Recognising that there have not been any research studies conducted in the area of applying strategies such as Differentiated Instruction (DI) for children with Autism in mixed-ability classrooms in India, the researcher intended to provide data which could inform future practice on the basis of empirical data.

Why Differentiated Instruction?

Teachers in mainstream schools in India have tried intervention strategies to accommodate children with Autism which have at times centred on the development of differentiated lessons. Vygotsky in his development of a zone of proximal development (ZPD) (Hedegaard, 1996; Kouzulin & Gindis, 2007) emphasised the necessity of providing a structured and supportive approach to learning. This theme was further developed by Gredler and Shields (2008) who advocated that researchers should adopt investigative approaches compatible with this theory. Differentiated strategy takes into consideration uneven developmental profiles of children with Autism while planning a classroom activity (Heacox, 2002). The objective of this research was to seek insights into the knowledge and attitudes of teachers and parents towards implementing DI as an approach that assists teachers in scaffolding the learning of students with Autism within inclusive classrooms. Hence, the aim of this study was to gain an insight on the knowledge and awareness of applying the approaches of DI as an interventional tool for teaching children with Autism in the mainstream school settings.

Literature Review

Differentiated Instruction (DI)

Key Elements of DI

DI is based on the principles that teachers can differentiate the main components of content, process, product and the learning environment according to student's interest, readiness and learning profile (Hertberg-Davis, 2009). This approach is adopted with the intention of increasing growth, motivation and efficacy in learning. The core principle in DI is that there is flexibility to teach the same curriculum in different ways, according to the students' strength, needs, interest and learning styles constituted by a number of strategies (Vickerman, 2009).

DI for children with Autism

Woldron and McLeskey (2001) stated that DI is beneficial for teachers in inclusive classes who support learners with Autism. This is because DI can support pedagogy which helps schools in their pursuit of inclusive education.

Indonesian researchers Padmadewi and Artini (2017) claimed that DI is one of the evidence-based approach for students with Autism to learn English. Capturing the main idea of the curriculum, writing up a summary of the key concepts, and use of a concept map are examples of the different instructional strategies suggested by Lawrence-Brown (2004). Other resources for extra support for children with Autism include manipulative, visual aids, charts, outlines and picture cues. Additional structure to the general curriculum can be provided through instructional strategies for teachers and learning strategies for students.

Promotion of active learning is also suggested by Lawrence-Brown (2004). This includes hands-on experience, multi-sensory teaching, cooperative learning and real-life applications of concepts and incorporation of theory of multiple intelligence and identifying each person's learning style. According to Heflin and Alberto (2001) these additional supports benefit all children; from those with mild learning disabilities to students with severe disabilities including Autism.

Children with Autism face challenges in social, communication, behavioural and cognitive functioning they require predictability. Mercer and

Mercer (2004) suggested providing a visual schedule where children's preferred activities could be introduced in the beginning followed by activities less-preferred. This could gradually improve the on-task behaviour of the children for the less-preferred activity. Bender and Mathes (1995) also indicated the usefulness of schedule boards to reduce desk fatigue for children with Autism. A schedule could be planned to begin with independent work, moving on to small-group instruction and then hands-on learning centres, followed by whole-group instruction and then ending with cooperative learning activities. Incorporating the DI strategies such as graphic organizers and guided notes as a learning strategy have enhanced the learning opportunities for students with Autism.

In a study conducted by Kunnath et al. (2018), 40 mainstream teachers and 32 special educators from six schools in a semi-urban locality in India were surveyed and interviewed about the inclusion of children with Autism in mainstream schools. The results indicated that mainstream teachers were ready to physically place children with Autism in the classroom but were not equipped for educational intervention. The teachers were of the opinion that children with Autism may not be able to keep up to the pace of teaching in a mainstream class. The teachers indicated concern about implementation of strategies such as DI. Whereas special educators were more aware of the DI strategies. The study indicated that mainstream teachers were aware of characteristics of children with Autism. However, they felt the need for training in curriculum modification, DI and academic accommodations.

Difficulties in Implementing DI in the Classroom

Implementation of DI requires the guidance, support and leadership of skilled practitioners. Munro (2012) argues that in most schools the responsibility for implementing differentiation lies solely with the teachers and they rarely receive the support of the school management. In a study conducted by Brighton et al. (2005) in six middle schools in three different states of America as part of a staff development programme, teacher participants were assigned two sets of activities one being differentiated instruction and the other being differentiated assessments. Results revealed that implementation of both differentiated instruction and assessment are complex endeavours and they require time and effort to learn and implement. They identified limitations such as having a large number of students in each class, limited resource material, lack of time for planning DI activities and teachers having multiple school responsibilities which made significant demands on their time (Brighton et al.,

2005). All these factors were seen to be a hindrance and made the implementation of DI a challenging proposition.

DI constitutes gaining knowledge of the characteristics in each child with Autism with whom the teacher interacts, identifying their strength, sensory needs, readiness, interest and ability. The teachers then plan and implement the key elements of DI the content, process, product and learning environment. (Santangelo & Tomlinson, 2009). The current study investigated if there is a correlation between implementing DI strategies for children with Autism in a mixed ability class and children's successful inclusion.

Research Question

What are the views of teachers, special educators and parents towards applying Differentiated Instruction in their efforts to overcome the challenges of including children with Autism in mainstream schools?

Methodology

Participants

Purposive sampling was used to select participants from varied backgrounds and the sample represented the variations in the population being studied for example:

- Sample 1. Mainstream teachers experienced in teaching children with Autism and who were novices in this area,
- Sample 2. Special Educators working in mainstream or special schools and who were new in this field.
- Sample 3. Parents who have children with Autism attending a mainstream school or a special school with previous exposure of being in a mainstream school.

Each sample group consisted teachers, special educators and parents from inclusive mainstream schools who have been implementing teaching strategies and some teachers who have been using DI.

Recruitment

Participants of teachers, special educators and parents for the study were selected from six schools. These six schools were selected from a list of local schools as they were most commonly identified as providing a commitment to inclusive education. The criteria for selection of these six schools was based on

the opinions and perceptions of parents of children with special educational needs (SEN). These schools were recommended by specialist teachers and school counsellors, as perceived to have been providing successful accommodations and concessions to children with SEN in Chennai. Documentary evidence from the schools indicated that the teachers in these schools had been implementing various teaching strategies including DI to encourage participation of children with SEN in mainstream classes.

The six sample mainstream schools were private schools (not run by the Government of India). Government schools were not considered as acquiring government approval to conduct a study of this structure would be time consuming and prove difficult as there are protocols to be carried out to seek permission to conduct studies and these rarely result in a positive outcome (MHRD, 2009). Since these six schools had a reputation of practicing inclusive education in Chennai the choice of conducting this study with private schools was deemed appropriate.

The research was subject to ethical approval through a university ethics committee. All participants were provided with details of the purpose of the research and were only involved after providing informed consent. All data was securely maintained and participants were notified of their rights to participate or to withdraw from the process at any time.

Questionnaire

A questionnaire was developed using a set of four to six statements based on the familiarity, implementation and benefits of DI (see Table 6, 7 and 8). Participants were asked to respond how strongly they agreed or disagreed each statement using a six-point Likert scale (Table 6, 7 & 8). The respondent's choice on any one of these categories provided clarity on their view in relation to be to each of the questions. In addition, there were open ended questions designed to obtain qualitative data related to the teaching strategies implemented in the classroom and a description of any DI strategies currently in use. Respondents provided short comments (typically between one or three sentences) in response to these questions (Rowley, 2014). These responses were managed as qualitative data and subjected to scrutiny in the same way as that obtained through interviews (see below).

Interviews

To obtain further in-depth data to elicit more in-depth views and understand the perceptions of the participants, semi-structured interviews were conducted.

These involved both face-to-face and telephone interviews. These interviews were semi-structured in nature, enabling participants to expand upon their answers and provide detailed responses and where necessary the interviewer was able to seek clarification on points mentioned.

Procedure

Tables 1, 2 and 3 provide description of the selected tools or instruments, namely, questionnaires and interviews and the sample schools where the study was implemented (N=6).

Questionnaire

For the questionnaire: (Table 1, 2 & 3) Sample 1, Mainstream Teachers; each of the six schools agreed to distribute around 25 questionnaires among their teachers. This totalled to approximately 150 mainstream teachers. In Sample 2, Special Educators in each school the number of questionnaires distributed varied from a minimum of five to 10 (total = 60). Similarly, sample 3, Parents; consisted of parents who have children with Autism studying in a mainstream school or a special school but with previous experience of a mainstream school (total=50). I personally distributed and collected the questionnaires from teachers and special educators and parents from their schools.

Interview sample

For the interview: Sample 1, mainstream teacher; two teachers from each school (N=10). Sample 2, two special educators from each school (N=12). Sample 3, parents; five parents from each school (N=10).

Table 1. *Sample 1: Mainstream Teacher*

Mainstream School Teacher			
Sample Tool/Instrument	Sample Group	Sample Size	Total Size
Questionnaire	6 schools	25 Teachers in each school	150 teachers
Interview	6 schools	2 Teachers from each school	10 teachers

Table 2. *Sample 2: Special Educator*

Special Educator			
Sample Tool/Instrument	Sample Group	Sample Size	Total Size
Questionnaire	6 schools in all	5 to 10 special educators in each school	60
Interview	6 schools in all	2 special educators from each school	12

Table 3. *Sample 3: Parents*

Parents of Children with Autism			
Sample Tool/Instrument	Sample Group	Sample Size	Total Size
Questionnaire	a) Parent of children in Mainstream school b) Parents of children in special school with exposure of sending them into the mainstream school	A mixed set of group	50 parents
Interview	a) Parent sending children Mainstream school b) Parents of children in special school with exposure of sending them into the mainstream school	5 parents from each group	10 parents

The interviews and questionnaires were piloted in two of the sample schools to verify and improve the instruments and to test the efficacy of the processes. Appropriate changes were implemented on completion of pilot

study. Piloting the instruments helped in modifying the questions both in the questionnaire and the interview and planning an appropriate protocol for conducting the study. For example, Question 5 (refer Table 6, 7) was added to understand the practicality of implementing DI in India.

To help in maintaining confidentiality and to support reporting, comparisons and contrasts between sample schools they have been identified as A, B, C, D, E and F.

Data Analysis

Questionnaire

In each of the six sample schools (Table 4) 25 questionnaires were distributed to mainstream teachers totalling to 150, out of these 99 questionnaires were completed and returned. The 60 questionnaires distributed among special educators; 46 questionnaires were returned. A total of 50 questionnaires were distributed among the parent group and 43 were returned (Overall total = 188).

Table 4. Numerical Representation of Questionnaires Distributed and Returned

Number of questionnaires distributed		Number of questionnaires returned	
Mainstream teachers	150	Mainstream teachers	99
Special educators	60	Special educators	46
Parents	50	Parents	43
	N= 260		N= 188

Interview data

Interviews were conducted with a total of 10 mainstream teachers, 11 special educators and 10 parents (N=31).

Table 5. *Number of Interviews Planned and Conducted*

Number of interviews planned		Number of interviews conducted	
Mainstream teachers	10	Mainstream teachers	10
Special educators	12	Special educators	11
Parents	10	Parents	10
N = 32		N = 31	

The in-depth qualitative data received from the interviews provided clarity and rich information to complement the data obtained from the questionnaire.

In this study the qualitative data analysis yielded data affording an opportunity to gain insight into the professional practices adopted in the sample schools. Qualitative dominant mixed methods are implemented when the research relies on a qualitative, constructivist view of the research process, concurrently recognizing that the addition of quantitative data would benefit the research project (Johnson et al., 2007). In this investigation, the mixed methods approach enabled the use of descriptive statistics to provide insights into the broader sample of respondents. Interview questions were transcribed and further segmentation of data enabled to identify commonalities in statements related to the research questions and apply a code to emerging issues. A process of data reduction by combining codes under specific themes that pertained to the research questions was conducted leading to a thematic analysis pathway (Williams & Moser, 2019) affording a more nuanced approach to understanding the experiences of professionals and parents. The themes that emerged were as follows:

- Implementation of Differentiated Instruction
- Challenges faced by teachers in their pursuit towards applying the DI strategies
- Need for training teachers in DI
- Need for resource persons to assist the child with Autism in an inclusive classroom

Findings

Implementation of DI

The quantitative data (questionnaire) showed that 67.5% of mainstream teachers and 84.7% special educators reported implementing DI strategies (see Table 6 & 7). However, the qualitative data (interviews) noted that teachers from school A and B were the only two schools who mentioned that were implementing DI strategies. In schools C, D, E and F the teachers' awareness of DI was limited to modification of teaching strategies. The dependence on the direct teaching approach and conventional methods of conducting a lesson of reading from the text book and teaching were more commonly observed. The teachers agreed that they were following the one-size-fits-all method rather than a differentiated approach.

Advantages of DI

Quantitative data indicated 81.7% mainstream teachers agreeing to the statement that DI strategies would be beneficial in a mixed ability class (Table 6). Almost all (89.8%) of special educators agreed to this (Table 7).

A teacher from school B was of the view that

Differentiating does not mean separating the students with Autism from the others. It shows that no uniform technique will work for all. It is to know that there are various ways or strategies to teach.

A teacher from school A described that, DI helps in retention of information and also in responding to individual needs, increases learner motivation, higher academic achievement and improves collaboration among students with similar abilities. In the open-ended questions in the questionnaire teachers from school A and B reported:

We use DI strategies such as: Tiered assignment by dividing the class into 3 groups by assessing the abilities of the children into- At grade level, below grade level and above grade level. Cubing— incorporates the 6 thinking levels in Blooms Taxonomy. Think –Pair – Share strategy works well with a peer buddy. Tic- Tac- Toe is a great way to choose the child's own learning style. We use strategies such as: Raft, Menu, Pass the ball and a whole lot of strategies which the children enjoy and learn.

Challenges in Applying DI

It was noticed that there were gaps between theory and effective classroom practices. Special educators and teachers were not familiar with the theoretical aspects and the strategies in DI hence the findings indicated only 63% special educators being familiar with DI strategies. However, on the other hand the discrepancy in findings of 84.7% special educators agreeing on the implementation of DI was reported even though, they had actually modified the syllabus in the curriculum.

The quantitative data indicated the difficulties of applying DI strategies with large class sizes. Mainstream teachers (51.4%) and special educators (39.1%) agreed that it would be difficult to apply DI strategies (Table 6 and 7).

DI for Children with Autism

The quantitative data indicated that 82.8% of mainstream teachers and 80.4% of special educators were of the view that applying DI strategies would be useful for children with Autism in a mainstream class. Parents were of the view that implementing DI improves the social skills in children with Autism.

Quantitative (Questionnaire) Data

Table 6. *Mainstream Teacher – Applying Differentiated Instruction in Inclusive Education*

	(1) Strongly agree	(2) Somewhat agree	(3) Neutral	(4) Strongly disagree	(5) Somewhat disagree	(6) Don't Know
1 I am familiar with the strategies in Differentiated Instructions (DI)	23	42	22	3	0	9
	23.2%	42.4%	22.2%	3.03%		9.09%
2 I have been implementing the strategies in Differentiated Instructions in my school.	28	39	24	2	1	5
	28.2%	39.3%	24.2%	2.02%	1.01%	5.05%

3	While teaching in a mixed ability group I feel implementing the strategies in Differentiated Instructions would be beneficial.	48	33	10	4	0	4
		48.4%	33.3%	10.1%	4.04%		4.04%
4	I feel implementing the strategies in DI would be helpful/ useful for students with Autism in the mainstream school.	41	41	12	2	2	1
		41.1%	41.4%	12.1%	2.02%	2.02%	1.01%
5	In India with an average strength of 30 or more students in each class in the mainstream school, implementing the strategies of DI may not be a practical approach.	18	33	25	15	4	4
		18.1%	33.3%	25.2%	15.1%	4.04%	4.04%
6	Teacher training programme in	68	18	7	3	1	2
		68.6%	18.1%	7.07%	3.03%	1.01%	2.02%

the application of DI strategies would be beneficial for teachers in a mixed abilities class.

Table 7. *Special Educator – Applying Differentiated Instruction in Inclusive Education*

		(1) Strongly agree	(2) Somew hat agree	(3) Neutral	(4) Strongly disagree	(5) Somewhat disagree	(6) Don't Know
1	I am familiar with the strategies in Differentiated Instructions (DI)	14	15	17	0	0	0
		30.4%	32.6%	36.9%			
2	I have been implementing the strategies in Differentiated Instructions in my school	15	24	7	0	0	0
		32.6%	52.1%	15.2%			
3	While teaching in a mixed ability group I feel implementing the strategies in Differentiated Instructions would be beneficial.	29	12	2	3	0	0
		63.04%	26.08%	4.3%	6.5%		
4	I feel	22	15	6	3	0	0

	implementing the strategies in DI would be helpful/ useful for students with Autism in the mainstream school.	47.8%	32.6%	13.0%	6.5%		
5	In India with an average strength of 30 or more students in each class in the mainstream school, implementing the strategies of DI may not be a practical approach	7	11	16	7	5	0
		15.2%	23.91%	34.7%	15.2%	10.8%	
6	Teacher training programme in the application of DI strategies would be beneficial for teachers in a mixed abilities class.	30	13	2	1	0	0
		65.2%	28.25%	4.3%	2.1%		

Table 8. Parent – Applying Differentiated Instruction in Inclusive Education

		(1) Strongly agree	(2) Somewhat agree	(3) Neutral	(4) Strongly disagree	(5) Somewhat disagree	(6) Don't Know
1	In an inclusive school the special educator and the general teacher need to work in a collaborative manner for the benefit of children with SEN.	40	2	0	0	0	0
		95.2%	4.7%				
2	Teachers in the mainstream school need to attend training programmes to upgrade their skills in inclusive education.	40	1	1	0	0	0
		95.2%	2.3%	2.3%			
3	Children with ASD would benefit from additional one to one support during lessons in an inclusive school	35	4	2	1	0	0
		83.3%	9.5%	4.7%	2.3%		

4	Children with ASD would require the help of additional support staff or a shadow teacher	26	11	3	0	0	1
		61.9%	26.1%	7.1%			2.3%

Need for Teacher Training

Mainstream teachers (86.7%), special educators (93.4%) and parents (97.5%) (Table 6, 7 & 8) agreed that teachers working with children with Autism need to be trained in evidence-based practices such as DI.

Teachers and special educators need training in DI. The teachers were of the view that since DI is a new teaching technique, they would require formal training in implementing this strategy.

As reported by one of the teachers:

The awareness in differentiated instruction is very poor in our country India. We in India have a LONG WAY TO GO therefore very few training programmes are directed towards understanding its nuances. Since the awareness is less teachers think that it is a mammoth task and therefore shy away from practicing it. The other problem our schools have very minimum resources and infrastructure to be demanding a curriculum that can be differentiated.

Need for Collaboration

Analysis of the parent quantitative data revealed 88% agreement among the parents stating that special educators and mainstream teachers should implement collaborative efforts for children with Autism (Table 8). The parents reported that the assistance from occupational and speech therapists provided valuable resource support. Parents were of the view that children with behavioural problems would benefit from having a caregiver or shadow workers present at school.

Discussion

Implementation of DI

The quantitative data in the study revealed that 67.5% mainstream teachers and 84.7% special educators agreeing that they implemented the strategies in DI. (Table 6 & 7). However, it was evident from the analysis of the interviews that schools A and B were the only two schools who had implemented DI strategies (both theoretically and practically). During the interview the teachers from both schools A and B reported that they had implemented DI strategies such as tiered groups, cubing and scaffolding and modifying the content, process, product and learning environment according to interest, readiness and learners' profiles.

Though the teachers in the other schools (C, D, E & F) had indicated in the quantitative data that they used DI, it was evident in the interview data that they had actually modified the syllabus in the curriculum and were using the teaching and learning materials (TLM). The teachers modified the print in the text books to large font size, this provision for large font size was also implemented for test question papers. Large size checked note books and three lined notebooks were also reported as in use. Pull out sessions were conducted for children where visual learning was implemented, through picture books, flash cards which in some instances could be word and picture cards and videos on various curriculum related topics.

Arguably it would seem reasonable that the above-mentioned modifications could be considered as part of the process of differentiation (one of the variables of DI). Joseph (2013) suggests that this type of differentiation is not a planned and conscious strategy and would be considered as a natural teaching practice. The findings in this study aligned with Joseph (2013) as results from the interviews indicated that teachers from the sample schools C, D, E and F had implemented the strategy of process differentiation. They had at times modified the content of the lessons, including providing concessions during exams by providing extra time, provision of scribe to write the exam, which could be part of product differentiation. Landrum and McDuffie (2010) state that these modifications are termed as individualized instructions, which are traditional practices implemented by special educators. They claim that there is an overlap in the processes of individualised instructions and DI as there are stark similarities between the recently conceptualized strategies such as that of DI and the traditional individualised instruction practised by special educators. The contrast was reiterated and explained during the interview, as

schools C, D, E and F were not familiar with any of the terms such as ‘process’ and ‘product’ differentiation and could not name any of the strategies in DI as indicated by school A and B.

Although there is emphasis on adherence to evidence-based practice and following theoretical models in educational intervention, some researchers have argued against the blind adherence to intervention protocols (Preece & Zhao, 2015). These researchers suggest that the teacher’s skills and creativity are just as important (if not more so) than protocols and theoretical models. Further researcher, Hedges (2012) noted that the knowledge gained through their own educational and teaching experience of teachers are more likely to be prioritised over theoretical or pedagogical practices.

Differentiation is carried out at various levels depending on the need and readiness of the child. As indicated by a teacher who stated that children with Autism had to be shadowed for some activities and there were other students for whom peer-mediated learning helped. Further, for a few students a pull-out or a, one to one remedial session was needed. These multiple strategies as seen to be implemented suggest that the process at which the differentiation takes place too varies according to the ability and readiness of the students in each class.

It is concluded that the teachers and special educators from schools C, D, E and F though they lacked the theoretical knowledge of implementing the strategies in DI however, as a natural teaching practice (unknowingly) had implemented differentiations in content, process and product.

Advantages of Implementing DI

Results from the questionnaire indicate that both mainstream teachers (81.7%) and special educators (89.8%) agreed that DI strategies would be beneficial in a mixed ability class (Table 6 and 7). Further advantages of DI were described by interview participants. Teachers were of the view that they need to be flexible and modify the curriculum to teach students with Autism rather than students adjusting themselves to the curriculum. Contemporary classrooms are becoming increasingly academically diverse with inclusion of children with learning disabilities including Autism (Subban, 2006). Teacher participants expressed this diversity among students as they have varied interest, abilities, learning styles and multiple intelligences.

Challenges in Applying DI

The questionnaire data indicated contradictory responses from special educators regarding familiarity and implementation of DI strategies. Qualitative analysis clarified that it was only special educators from schools A and B who implemented the strategies of DI such as tiered groups, cubing, Raft, Menu, Tic-tac-toe. Special educators from Schools C, D, E and F were not familiar with the DI strategies and with modifying the content, process, product and learning environment according to interest, readiness and learners' profiles. As indicated in the section above on implementation of DI it was reported that 84.7% special educators had implemented DI however, on the other hand in the interview data special educators reported that they modified the print in the text books to large font size and used TLM's to teach and had not implemented the DI strategies.

Teachers and special educators from School A and B reported multiple challenges in applying DI strategies in a mixed ability class. These challenges included that DI required preparation time, and required support of other staff members and school management. These findings are consistent with findings reported by Brighton et al. (2005) indicating that DI is a complex proposition that requires planning, preparation, time and effort from the class teacher. The findings also indicated the realities of a large class size in India which vary between 25 to 50 students. Additionally, the resource material available for DI is limited, multiple teacher responsibilities and commitment of mainstream teachers to complete the syllabus stood out as further challenges to implementing DI strategies in mainstream classes.

DI for Children with Autism

Stahmer et al. (2011) stated that there are complexities of selecting intervention programmes for children with Autism. These relate to the unique developmental profile of each student with Autism. A teacher in school C stated that understanding the various needs which they may encounter in class. Applying Vygotsky's theory of ZPD, DI strategy promotes social interaction in children with Autism in the mainstream school, it imparts scaffolding and approaches appropriate to each student's development (Kouzulin & Gindis, 2007).

Need for Teacher Training

A parent shared her aspirations about training by stating that the teachers need to be provided with training in teaching and learning strategies. Similarly,

teachers need to have an open mind towards implementation of evidence-based strategies such as DI.

Need for Collaboration

The quantitative data correlates with the findings by Strogilos et al. (2017) (p.1127) wherein 34 pairs of general teachers and special educators co- taught in classrooms in Greek schools. Limited collaboration in implementing DI strategies was reported. The general teachers expressed the need for training as they were of the view that the sole responsibility of students with SEN should not be placed on special educators. Similar views were expressed in this study by parents of children with Autism as most of the parents (88%) reported that they needed collaborative efforts for children with Autism (Table 8). Parents mentioned the support of occupational therapist, speech therapist and shadow worker and caregivers. Leach and Duffy (2009) suggest enhancing collaboration among general educators, special educators, parents and resource workers.

Limitations of the Concept of Inclusion for Children with Autism in India and the Concept of Differentiation

This study is important particularly in an Indian context as the systematic process of inclusive education for children with Autism is in its nascent stage. Teachers face difficulties and challenges while working in an inclusive environment for children with Autism. The uneven profile of children with Autism poses restrictions on including them into the general education classroom (Chari, 2004). Inclusion may not be a possibility for all the children on the Autism spectrum as it will depend on each individual child, his /her ability and interest and comfort level towards social interaction and social communication. A major factor affecting inclusive education for children with Autism in India is the lack of educational and therapeutic resources in urban India and the lack of awareness in rural India. Hence, there is a delay in timely identification and intervention in India (Sengupta et al., 2017)

DI is a complex teaching strategy which involves individualisation of aspects of the education programme. DI strategy in India is still emerging as a teaching strategy and there exists a gap between theory and practice. Even though teachers in this study were positive towards implementing DI strategies, there were misinterpretations regarding key terminologies and a lack of clarity in implementation. In spite of all the known difficulties, implementation of DI will be possible if there is a change in the mind-set of

individual teachers. This also requires professional training by resource practitioners who are experts in practicing the DI strategies.

Implications and Recommendation

Teacher empowerment and education in varied pedagogies to support students with Autism with the need on focused training programme in DI both in theory and practice was highlighted in the findings and was discussed. The Government of India is promoting inclusive education through educational reforms, funding allocation for infrastructure modification and training but there is limited resource allocation for teacher training about inclusive education. The Government needs to include topics on special and inclusive education in their syllabus in the Bachelor and Masters of Education (B.Ed. and M.Ed.) programme. B.Ed. and M.Ed. in (Special Education) should also increase its focus on inclusive education. It is important that curriculum planners who design the teacher education programme in India incorporate professional training on evidence-based pedagogies as DI for effective inclusive education. Easy-to-use resource kits especially practical training programme on application of DI in an inclusive classroom should also be added in the curriculum. For teachers who are new learners, resource material in DI should be developed by experienced teachers.

It is recommended that teachers should work in a collaborative manner along with special educators, therapists, parents and care givers for the betterment of child with Autism (Strogilos et al., 2017) This collaborative effort will indirectly reduce the pressure on the mainstream teacher.

Conclusion

The teachers and special educators in this study confirmed that differentiation is carried out at various levels according to the need and readiness of the child. Teachers reported shadowing students for some activities, for a few others peer-mediated learning was advantageous and some others conducted pull-out remedial sessions.

This study asserts that applying DI by modifying the content, process and product recognizing the interest, knowledge and readiness in each child can maximize the student's learning potential. However, teachers were concerned with the application of the DI approach due to the lack of preparedness, and limited knowledge and experience in the application of this

strategy. The analysis of the findings suggests changes which could support a shift in the mind-set of teachers towards applying the DI approach.

Though the mainstream teachers and special educators were of the view that they were implementing the DI strategies, the findings indicated that teachers and special educators needed to be updated with theoretical knowledge on the nuances of key terminologies and to be introduced to the variety of strategies in DI. It was evident that they had applied process differentiation to some extent and they had also modified the content and applied product differentiation at times.

There are numerous challenges in applying DI in the mainstream schools in India. Implementation of DI requires planning and preparation time. In India there are disadvantages of large class size, multiple responsibility for the mainstream teachers, lack of knowledge on theoretical and practical training in DI, limited availability of DI resource material. Hence, the need for training and practice sessions in the implementation of DI was unanimously agreed by mainstream teachers and special educators in the study.

Teachers and special educators confirmed the advantages of applying differentiated strategies for children with Autism. DI identifies the readiness to learn according to the child's interest identifying activities according to the multiple intelligence and the learning style. DI also creates learning environments which could be structured and suitable to children with Autism.

Since teachers face obstacles while implementing DI, they expressed interest in professional development in implementing DI. The teachers were unaware of evidence-based training programmes applicable in inclusive schools and showed interest towards training approaches in DI. Implementing such strategies would require a collaborative effort amongst mainstream teachers, special educators, allied therapists such as occupational therapist, speech therapist, school principal and management. The support from parents, family members, caregivers and shadow workers were deemed critical.

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